UDC: 331.5-055.2:347.627.2]:519.862(497.7)"1996/2013"
Original scientific paper

TOWARDS AN ECONOMIC APPROACH FOR STUDYING OF DIVORCES IN MACEDONIA

Goran Miladinov, MSc[1]

Abstract

This paper examines the impact of trends in female labor force participation on crude divorce rate in Macedonia for the period from 1996 to 2013 in the context of a broader examination of the relationship between the economic factors and their effects and the risk of divorce. In light of the changing demographics of divorce patterns, we investigate the relationship between economic variables and divorce, controlling for a set of social and life course variables.The analyses was conducted using an econometric simultaneous equation model (SEM) and 2SLS method. The results indicated that there is simultaneous relationship between the mean age at first marriage for women, female labor force participation and the crude divorce rate. We find that factors that improve financial stability are positively associated with divorce trends. Understanding the effects of female labor force participation is therefore important to explain divorce trends.Our results suggest that the influence of the the unemployment elasticity and Consumer price index elasticity on divorce have declined and almost and disappeared. We also find that a range of other social and life course factors are also important to be considered relevant whether or not a person divorces.

Keywords: *marriage dissolution, SEM, 2SLS method, mean age at first marriage, female labor force*

JEL classification: C36, C26, C52, J12, J21, E24

Introduction

Since the 60s, European family behaviors have experienced a gradual and constant change. Many countries have had a slow alienation from marriage which has provoked a decrease in nuptiality rates and consequently an increase in the number of informal unions, divorce rates and remarriage rates, typical elements of the so-called second demographic transition (Van de Kaa, 1987, Lestgaeghe, 1995). Better access to education and employment has encouraged female economic emancipation by

1 Ph.D student at Faculty of Economics - Skopje, University"Ss Cyril and Methodius ", miladinovg@netscape.net

reducing women's financial dependence on men.Moreover, the increasing numbers of women in the workforce and improved educational levels have contributed to redefining the role of women in the family and in society (Attané, Barbieri,2009,p.41). There are changes in the way marriage is perceived, especially among the most highly-educated women, who cast an increasingly critical eye on the traditional distribution of household tasks and roles. The marriage decline and the progressive loosening of traditional family solidarity, a recognized factor in union instability, have generally gone together with a rise in divorce rates in recent years. The rise in divorce rates has become a key phenomenon underlying significant changes in family structure and in patterns of social stratification in contemporary societies. The number of marriages ending in divorce rose rapidly in most developed nations during the 1970s and 1980s. Although divorce rates began to stabilise in the 1990s in some countries, they continued to rise in others.However, as divorce became increasingly commonplace, the focus of research does seem to have shifted from the causes and circumstances of divorce to life after divorce. Today researchers are "no longer wondering about the specific causes of divorce but about its short-and medium-terms effects, the lifestyle it entails, the family re-composition it leads to"(Anne, 2009, p.232).

Theoretical background on divorce

It has been shown that many factors are related to marriage dissolution, including women's increasing financial independence as their role in the labour market grows and gender inequalities in wages gradually diminish;changes in gender roles;factors related to the parental home, including parental separation; personal characteristics, such as educational qualifications; religious attitudes; the presence of one's own children; the duration of the union; the partners' age at union formation; the age gap between partners; the number of previous unions and the place of residence and migration histories (Hill,Paul,2010,p.880).

Some experts (Anne, 2009, p.157) have investigated the impact of job insecurity and unemployment on the couple, although they have not been able to determine unequivocally the direction of cause and effect. According to Jalovaara 2003 and Hansen 2005 very few analyses have investigated the impact of a wife's unemployment on divorce, although there is some evidence of a positive relationship between the two factors in Scandinavia."Unemployment usually generates greater stress for a couple, which facilitates marital breakdown; moreover, unemployment status might be an indicator of an anticipated or expected union dissolution" (Fabrizio, Juan, 2011, p.775). What effects do economic shocks, like sudden unemployment or other sharp changes in earnings, have on marriage? There is some evidence from both Europe and the United States supporting the hypothesis that economic instability or hardship in the household increases the likelihood of marriage dissolution (Torkild,Marika,2010,p.267). For example, a husband's unemployment has been shown to increase dissolution rates in Norway, Finland, Germany, and the United States. Fewer studies (Hansen 2005; Jalovaara 2001; 2003) have examined the impact of a wife's unemployment, but results from Scandinavia have shown a divorce-promoting effect. In line with economic search theory, sudden changes in the partner's economic contribution have

been found to increase the risk of divorce (Torkild, Marika,2010,p.267).

Rational choice theory developed by Gary Becker, was reflected in a change of approach to divorce. Proponents of rational choice theory (though it has relatively limited support among sociologists) explain divorce in terms of increasing cost of marriage to at least one of the partners. Once the marriage brings less reward than is expected from a separation, i.e. when the marriage has lost its utility value, it is in the spouses' interest to separate. From this viewpoint, according to Becker et al., 1977and Lemennicier, 1980 the decision to divorce is the result of a trade-off. "Divorce becomes the logical outcome if the marriage fails and the partnership no longer provides the benefits that led to its formation" (Torklid, Marika, 2010, p.258).The early work by Gary Becker and colleagues (Becker, Landes, and Michael 1977) assumed a unitary household utility function, while later economic theory by Lundberg and Pollak has more explicitly acknowledged that men and women may have differing incentives/ disincentives. Beckerian specialization model (Becker, Landes and Michael 1977) states that the gain from marriage is highest when one of the spouses specializes in paid market work, and the other in nonmarket work (housework and care). Given the persistence of historical gender roles and a gender wage gap, according to Torklid and Marika, this means that we should expect to see a lower divorce risk when the husband specializes in market work, and the wife in domestic production and reproduction (or works part-time at most). Accordingly, the divorce promoting effect of the wife's greater resources is referred to as the "independence effect." The wife's resources also add to the total resources of the family, which should increase marital stability (the "income effect"), but the "independence effect" is thought to outweigh any advantages (Ross and Sawhill 1975). To most readers, the specialization model seems anachronistic in contemporary Western societies. It has been widely criticized (see, e.g., Sayer and Bianchi 2000), and an alternative model has been proposed, in which the utility is highest when both partners contribute economically to the household (Oppenheimer 1997).With regard to the effect of women's employment, various studies have found that employed women are more likely to divorce than those who are inactive (South 2001)[2]. "Working women are able to bear the economic costs of divorce because they receive a salary and are less economically dependent on their husbands" (Fabrizio, Juan, 2011, p.774). Other studies have suggested that female employment calls into question the traditional division of labour within the household."The advantages of a gendered specialisation in paid and unpaid work are lost, and the interdependence of spouses is reduced (Becker 1981; Parsons 1949) and female employment is then associated with an increase in union dissolutions"(Fabrizio,Juan, 2011, p.774).

According to "deficit models", some couples have a higher propensity to divorce primarily due to a lack of socioeconomic resources (low income, no qualification), inadequate conjugal socialization (early marriage, absence of premarital cohabitation) or cultural differences between the spouses (heterogamy, mixed marriages, religious differences) (Anne,2009,p.162).But by 1980, the culturalist and economistic models both seemed to have lost their heuristic power because they could not explain the

2 For example, it is likely that wives who perform domestic work full-time in a context in which most women participate in the labor force are selected for having more traditional family values than other women, and this may be an important reason for the increasingly positive effect of wives' employment on divorce.

sudden rise in divorce rates that had occurred a few years previously (Kellerhals and Roussel, 1987). After the seminal article by Goode (1951) which established a statistical correlation between low economic status and high divorce rates, many econometric models have been constructed to test the causal relationship between a number of variables: social status of women, education level and number of children, but also health status, religious practice and macro-economic conditions, while varying the cultural and economic factors (Anne, 2009p.163). In her article from 2009, Lambert Anne points that other authors pursued the socioeconomic approach to divorce, testing the impact on divorce of specific variables such as the health status of the spouses (Wilson and Waddoups, 2002), female employment (Poortman,2005,Kalmijn and Poortman,2006), or the index of consumer confidence in the country's economic situation (Fischer and Liefbroer, 2006). In the Netherlands, for example, the dissolution rate for first marriages appears higher at times of economic recession, i.e. when the consumer confidence index[3] is low, irrespective of the spouses' educational level. According to Fischer andLiefbroer, this is because households are under greater pressure at such times. However, the research of this kind has failed to determine the link between marriage, divorce and poverty.

"Age at marriage is consistently found to have a strong impact on the propensity to separate or divorce, with lower ages at marriage being associated with higher risks of marital disruption" (Torklid, Marika, 2010, p.259). Literature provides various theoretical arguments that may account for the effect of age at marriage. For example, researchers have argued that young people tend to be less mature and make less forward-looking decisions, or that engaging in a short search on the marriage market may result in a relatively poor match."If early marriage is an indication of an insufficient search of the marriage market for a suitable spouse, those who married young will be more prone to divorce, as they are more likely to encounter a potential new partner"(Torklid,Marika,2010,p.259)."The importance of age at (first) marriage as a predictor of divorce has featured in the US literature for a number of decades, the primary finding is that early marriage is associated with an increased risk of divorce; furthermore, the effect of age at marriage on marital outcomes has been found to be non-linear, with the impact of a year's difference being most marked at younger ages" (Richard, 2013,p.169). Age differences between the spouses[4] are frequently cited as a factor in the status of women, an indicator of the degree of inequality within the couple, but also of the role and position of women in society (Magali, Veronique, 2005, p.620). "The age difference between spouses can also be considered as an indicator of the nature of the marital bond". (Magali, Veronique, 2005, p.621). Thus, early marriages of girls and large age differences between partners appear to be the manifestations of a structure of domination based on sex and age, and of a social organization that favors the patriarch and traditional concept of family over the individual freedom and autonomy.

3 Consumer confidence index measures how optimistic or pessimistic consumers are with respect to the economy in the near future.The idea is that if the consumers are optimistic; they will tend to purchase more goods and services. This increase in spending will inevitably stimulate the whole economy.

4 Age difference between spouses is calculated as the difference between the mean age of men and women at first marriage.

Divorce trends in Republic of Macedonia

Table 1 illustrates the noticeable decline in the crude marriage rate which occurred since 1990s in Macedonia. In Macedonia in 1996 the mean age at first marriage was 26.0 for men, but by 2013 this had increased to 28.6. Similarly for women the mean age at first marriage increased from 23.0 to 25.8 over the same period (SSO,2014). Table 1 also shows important differences between men and women in the age at first marriage. On average, in all countries, men are older than women when they marry for the first time.This gender difference is about 3 years in Macedonia for the entire observed period.The increase in age at marriage is partly attributable to increasing number of couples who postpone the marriage or because of the trend to cohabit prior to marrying since cohabitation has slowly become an alternative form of partnership in Macedonia[5].This situation is also probably related to longer time spent in education, cultural changes, but also to the economic crisis (youth unemployment) and lack of conditions to acquire their own housing (Dominique,Bruno 2005, p.525).

While the number of marriages is decreasing the number of divorces is increasing. Table 1 shows us the trend of divorced marriages per 1.000 population for the period from 1996-2013. Macedonia belongs to a group of countries with low levels of divorce. Macedonia is part of so-called Mediterranean model as it is characterized by specific trends that do not belong to either Central or Northern European countries. As for marriage instability, Macedonia has one of the lowest divorce rates in Europe whose value was 1.0 in 2013 (SSO, 2014). The lowest crude divorce rate in 2012 was recorded also in Ireland (0.6 divorces per 1 000 inhabitants), Italy (0.9 divorces per 1 000 inhabitants, 2011 data), Malta (1.1), Greece (1.2, 2010 data)[6], Slovenia (1.2), Croatia (1.3) Serbia (1.0) also recorded relatively low crude divorce rates. Among the EU Member States, the highest crude divorce rates in 2012 were recorded in Latvia (3.6 divorces per 1 000 inhabitants) and Lithuania (3.5), ahead of Denmark (2.8.) (Eurostat, 2014). Crude divorce rates[7], which provide an imperfect measure of divorce frequency in the populations concerned, oscillated between 0.40 and 1.00 during the years 1996-2013. The number of divorced marriages compared to 1.000 population increased from 1994 to2001, after 2001 there was either a decline or stabilization of divorce rates. The temporary decline observed in the years 2002–2003 and 2006-2009 was followed by an upward trend since 2010 until the very recent years.Changes observed since 2010 illustrate that marriage dissolution by divorce has become more frequent while it is still not very widespread. The divorce rate per 1.000 marriages in Macedonia is believed to have risen from 50.0 in 1996 to 146.2 in 2013 (SSO, 2014).The incidence of divorce has tripled since the 1990s. Using vital statistics data, it is showed that the proportion of marriages that dissolved within 18 years increased

5 Consensual unions are generally a short-term arrangement that precedes marriage or follows divorce. Demographers agree that consensual unions should not be viewed as an alternative to marriage-a significant stage in life, but rather as a test marriage (Gysi and Meyer., 1996, Cromm 1998).In the Nordic countries, non-marital unions are socially accepted as an alternative to marriage and as a partnership equal to marriage. Data about cohabitation in Macedonia are among the least well-documented demographic phenomena, due to the lack of data for both earlier and contemporary periods.

6 http://ec.europa.eu/eurostat/statistics-explained/index.php/Marriage_and_divorce_statistics

7 The crude divorce rate is the ratio of the number of divorces in a given year to the mean total population for the year. It is given per thousand.

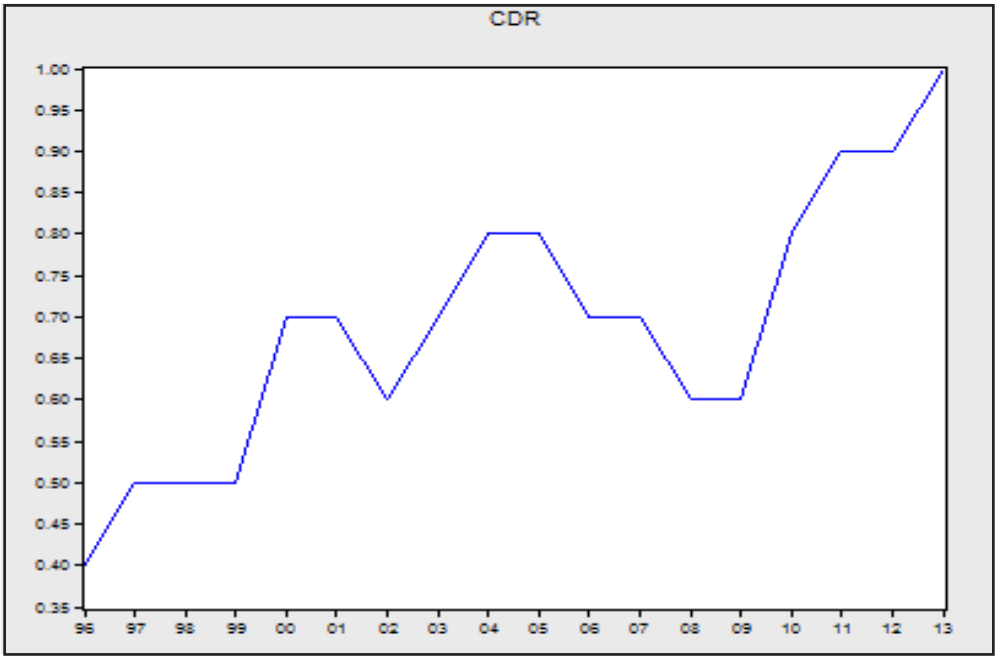
from 5% for marriages taking place in 1996 to 15% for marriages taking place in 2013. However, Macedonian marriages are increasingly likely to end in divorce, and having in mind these trends, it may be clear that in the future, Macedonia should no longer be viewed as a low-divorce society. Divorce appears to be spreading to all groups in society. Unfortunately in Macedonia the rates of partnership break down in cohabiting partnerships are not known and thus it is not possible to examine this important aspect of divorces.

Table 1: Marriages, Mean age at first marriage and Divorces in R. Macedonia, 1994-2013

year	Marriages per 1.000 population	Mean age at first marriage for women	Mean age at first marriage for men	Number of divorces	Divorces per 1.000 population	Divorces per 1.000 marriages
1994	8.1	22.9	26.0	612	0.3	38.9
1995	8.0	23.0	26.1	710	0.4	44.9
1996	7.1	23.0	26.0	705	0.4	50.0
1997	7.0	23.2	26.2	1021	0.5	72.6
1998	7.0	23.2	26.3	1027	0.5	73.5
1999	7.0	23.4	26.4	1045	0.5	73.7
2000	7.0	23.6	26.6	1325	0.7	93.0
2001	6.5	23.8	26.8	1448	0.7	109.1
2002	7.2	23.8	26.8	1310	0.6	90.2
2003	7.1	24.2	27.2	1405	0.7	97.6
2004	6.9	24.3	27.4	1645	0.8	116.9
2005	7.1	24.5	27.6	1552	0.8	107.0
2006	7.3	24.5	27.6	1475	0.7	98.9
2007	7.6	24.7	27.7	1417	0.7	91.5
2008	7.2	24.7	27.7	1209	0.6	82.3
2009	7.3	25.0	28.0	1287	0.6	86.2
2010	6.9	25.2	28.0	1720	0.8	121.5
2011	7.2	25.4	28.3	1753	0.9	119.0
2012	6.8	25.6	28.4	1926	0.9	138.0
2013	6.8	25.8	28.6	2045	1.0	146.2

Source: State Statistical Office

Figure 1. CDR-Divorces per 1.000 in Republic of Macedonia: 1996-2013



Source: Author's calculations

Data and methods

For this research topic, aggregate data sets are used from Vital Statistics and Labor force survey for the period from 1996 to 2013. There were included a range of time-varying economic and social and life course explanatory variables in the models presented below which were identified from the literature reviewed above. Several measures of the economic status and financial stability were included as female labor force participation, unemployment rate and the consumer indicator. The data about divorce trend and the mean age at first marriage[8] are based on Vital statistics register and for the economic variables related to Macedonian labor market (female employment and unemployment) data were drawn from the Labor force survey. Other aggregate data related to this research were also considered using the official publications of the Macedonian State statistical office. We modelled the economic effects on divorce using SEM regression model and 2SLS method. Particular interest of the research was whether divorce was influenced by some economic factors such as female labor force participation, the rate of unemployment in the country and consumer price index controlling for a range of other social factors and corresponding life course effects as represented by equations bellow.The aim was to test whether higher proportion of women employment in the society means above-average propensities to divorce.

Thus a simultaneous-equations model was built to estimate jointly an equation for

8 The mean age at first marriage refers to the age of men and/or women when they first get married

marriage dissolution and one equation for the mean age at first marriage for women since a simultaneous effect between these two variables was identified. The choice of this simultaneous strategy allowed us to include and explore some other time-varying covariates in the analysis. The aim was to identify and to control properly all simultaneous effect for all observed variables within the system of two equations. Once the models both for divorce rate and for the mean age at first marriage for women were estimated a stationary test was conducted. The Correlogram of residuals (Slave, Dragan, Marija, 2012, p.317) showed that both models are stationary and good models and that as such can be used for further predictions (prob >0.05) i.e., p-value of Ljung-Box Q statistics for time lags up to 12 was 0.355 for the model of crude divorce rate and 0.241 for the model of mean age at first marriage for women. To see if there is indeed simultaneity in our system of equations we have applied the test of Hausman (Vesna, 2009 p.421). Within the demographic and economic theories it is known that the divorce and female age at first marriage are mutually determined by economic status of women i.e. whether they are economically active or not. Therefore, in our case we concluded that the female employment is an endogenous variable although it appears on the right side of the equation. In order to test the simultaneity in the equation (1) the Hausman test was conducted. In the first step we took female employment as a dependent variable while the predetermined and the exogenous variables in the system i.e Consumer price index, unemployment rate in the country and the partner's age difference at first marriage were taken as independent variables. With this regression the residuals were obtained which was a second step of the Hausman test. Then again the function of divorce rate was estimated where we have included and previously received residuals as an explanatory variable. According to the Hausman test the coefficient in front of residual was statistically significant (prob= 0.008) and it means that the residuals explain the crude divorce rate that must not happen because the residuals should be a random variable. This indicates a simultaneous bias if we use OLS methodi.e this confirms hypothesis that OLS encounters bias (simultaneity bias).

Modelling divorces with 2SLS method

Extensive research has focused on measuring the impact of various forces on both age at marriage and divorce. Authors have linked changes in the labor market to trends in both variables. Moreover, researchers have found relationships between age at marriage, divorce rates, and factors as diverse as welfare provision, household technological progress, family law, and social norms(Dana,2012,p.13).These forces could potentially introduce a spurious correlation between age at marriage and divorce, biasing estimates of the causal effect of age at marriage on divorce.To reducethis bias,(Dana,2012,p.13) estimates regressions of the following form[9]:

$$logh_i(t) = log\ h(t) + \beta X_i + \delta_{iy} + \theta_{is} + \alpha Age_i + \gamma C_{isy} + \varepsilon_{ist} \quad (1)$$

9 where is a vector of the variables thought to influence family structure, measured at the state of birth (s) by year of marriage (y) level.The vector includes measures of access toabortion, access to oral contraceptives, rates of co-habitation, female labor force participation, the gender gap in wages,occupational segregation by gender, unilateral divorce legislation, welfare generosity, andmale wage inequality.

Using several econometric techniques and different empirical strategies, DanaRotz suggests that age at marriage and divorce are robustly correlated, and, under certain conditions, can be said to be causally linked. Others (Becker 1973,1974,1991,Johnson and Skinner 1986,Oppenheimer 1997) have focused on the relationship between divorce and female laborforce participation or wages.Although factors such as female labor force participation (seeNeeman, Newman, and Olivetti 2008) and access to reproductive technology (as in Akerlof,Yellen, and Katz 1996 or Goldin and Katz 2002) surely caused changes in the family, theseand other driving forces largely impacted divorce rates by changing age at marriage. According to US literature, decreases in the gains to marriage led to increases in age at marriage, which in turn drove down the divorce rate. In her research from 2012, Dana Rotz concludes that although many different economic and social changes can be considered important distal causes of the fall in divorce, and according to her, the rise in age at marriage is the main proximate cause of divorce's decline in US from 1980 to 2004.

In our research approach, simultaneous equation model and two-stage least squares estimator (2SLS) or instrumental variable estimator (IV) is selected to estimate jointly an equation for divorce and one equation for the mean age at first marriage for women. This model is specified for this research topic concerned by the following equations system:

$$CDR_t = \alpha_0 + \alpha_1 FE_t + \alpha_2 UN_t + \alpha_3 CPI_t + u_{1t} \quad (2)$$

$$MAFMW_t = \beta_0 + \beta_1 FE_t + \beta_2 PAD_t + u_{2t} \quad (3)$$

Since we were interested in explaining divorce trends in Macedonia, then it was not necessary to specify a complete demography model as part of a socioeconomic model. On the basis of the author's demographic and economic knowledge of the subject, the explanatory variables were considered in the crude divorce rate equation and their nature, endogenous or exogenous was determined. In the second equation of the system the explanatory variables were considered for the mean age at first marriage for women. It concerns the following annual data for the period 1996- 2013: The log of crude divorce rate (CDR_t), the log of mean age at first marriage for women ($MAFMW_t$) and the log of female employment, (FE_t) are considered as endogenous variables, and the log of index of consumer price (CPI_t), log of unemployment rate (UN_t) and the partner's age difference at first marriage (PAD_t) are exogenous and predetermined variables.

For both endogenous variables which appear on the left side of stochastic equations (CDR-crude divorce rate in year t and MAFMW-mean age at first marriage for women in year t) we applied EViews 2SLS estimation method. In order to compare and to analyze these results here bellow are the results from the original EViews window figures. With the software package Eviews we have estimated both stages of the 2SLS method simultaneously. After we have specified our dependent variables, independent variables and the list of instruments [10](matrix Z), in order to estimate

10 The instrument variables are exogenous or predetermined variables.

following the equation (2) we get these results:

Table 2. EViews results for Crude divorce rate equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FE	5.921161	1.639499	3.611568	0.0032
UN	-0.112370	0.715547	-0.157041	0.8776
CPI	0.224516	0.847757	0.264835	0.7953
C	-22.6543	8.023878	-2.823389	0.0144

Source: Author's calculations

The variables log of lagged female employment, log of Consumer price index, log of partner's age difference at first marriage, log of lagged mean age at first marriage for men, log of lagged unemployment and the log of lagged crude divorce rate have been used as instruments for CDR_t. As the mean age at first marriage for women also is an endogenous variable the window to specify the model is given in table 3. EViews 2SLS estimation of mean age at first marriage for women is analogous to the above explained. In the equation EViewswindow we have entered variables according to the equation (3) as shown above:(MAFMWFE PAD C) while instrument list consisted of: log of lagged partner's age difference at first marriage, log of lagged female employment, log of Consumer price index, log of unemployment and the log of lagged crude divorce rate. After we have done it, we get the following result:

Table 3. EViews results for Mean age at first marriage for women equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FE	-0.166561	0.273838	-0.608247	0.5554
PAD	-4.320304	0.636648	-6.786022	0.0000
C	4.307323	1.033890	4.166134	0.0016

Source: Author's calculations

The output of 2SLS estimation for crude divorce rate shown in the table above shows us that female employment has significant positive influence in explaining the dynamics of divorces. The only economic measure that was significant for divorces was whether or not women were employed, which significantly increased the likelihood of divorce. The more women are in the labor force also the greater the likelihood of getting divorced. These results suggest some support for the view that financial security is a strong determinant of who gets divorced.The unemployment elasticity and Consumer price index elasticity have almost reduced, the influence of unemployment rate and consumer price index have disappeared. Both unemployment and Consumer price index variables do not have coefficients significantly different from zero. Having in mind results from above it is obvious to say that the fixed effect of the changes of the female employment (FE) on crude divorce rate in the equation system is expressed through the parameter (α_1). Because the endogenous variables are mutually conditioned, in our research these variables are crude divorce rate and the mean age at first marriage for women, it is no longer possible the slope coefficient ($\widehat{\alpha}_1$) obtained by the OLSto be interpreted as an influence of female labor force participation on divorce rate, when the unemployment variable remains unchanged, instead, ($\widehat{\alpha}_1$) now measures the mix of effects of the both endogenous variables.

The model estimates suggest that the crude divorce rate increases by approximately 6 percent when female participation on a labor market increases with one additional percent, implying that changes in the proportion of female labor force participation can explain at least 50 percent of the rise of the crude divorce rate for the period from 1996 to2013. Understanding the effects of female labor force participation is therefore important for explaining divorce trends. Causal estimates produced using IV and the estimates calculated using fixed effects that estimates using 2TSLS method are not biased measures of the effect of female labor force participation on divorce. Furthermore it is important to stress that the crude divorce rate and the percent of female labor force are mutually conditioned and determined, so that the change in the crude divorce rate will lead to a change in the percentage of employed females, which in turn shall cause repeated change in the crude rate of divorce. At the end of this analysis it is worth mentioning that by applying our modeling approach on divorce we also found that gender differences, such as partner's age differences at first marriage, are associated with getting a divorce. Importantly this suggests that being divorced cannot be attributed solely to financial stability, but that other social and life course factors also play a part.

Conclusion

Simultaneous equation model and two-stage least squares estimator (2SLS) or instrumental variable estimator (IV) was selected to estimate jointly an equation for marriage dissolution and one equation for the mean age at first marriage for women. With a software package EViews we have estimated both stages of the 2SLS method simultaneously. The output of 2TSLS estimation for crude divorce rate shown in the table above shows us that female labor force participation has significant positive influence in explaining the dynamics of divorce. These results suggest some support for the view that financial security is a strong determinant of who gets divorced. The model estimates suggest that the crude divorce rate increases by approximately 6 percent when female participation on a labor market increases with one additional percent, implying that changes in the proportion of female labor force participation can explain at least 50 percent of the rise of the crude divorce rate for the period from 1996 to2013. The unemployment elasticity and Consumer price index elasticity have almost been reduced, the influence of unemployment rate and consumer price index have disappeared. Both unemployment and Consumer price index variables do not have coefficients significantly different from zero. Given that we controlled also for a range of social and life course characteristics at a aggregate level in our models, these results provide convincing support that partner's age differences at first marriage also influences the risk of union dissolution. Examining the significant differences in union dissolution by the mean age at first marriage for women would need more attention further in the field of divorce studies.

References

Attané Isabelle, Barbiéri Magali (2009). The demography of East and Southeast Asia, *Population*, 2009, Volume 64, Number 1, p.007-146.

Barbiéri Magali, Hertrich Veronique (2005). Age difference between spouses and contraceptive practice, *Population,* Volume 60, No 5-6, p.617-654.

Bernardi Fabrizioi, Juan-Ignacio Martínez-Pastor(2011). Divorce risk factors and their variations over time in Spain, *Demographic Research*. Volume 24, Article 31,p.771-800.

Bucevska,Vesna.(2009). Econometrics with Eviews application.Faculty of Economics-Skopje.

De Guibert-Lantoine Catherine, Alain Monuier (1997). "The demographic situation of Europe and the developed countries", overseas: An annual Report, *Population*, Volume 9, p.243-268.

Genus, population journal, Volume LXI,NN. 3-4, july-december 2005.

Hewitt Belinda, Baxter Janeen (2012). Who gets married in Australia? The characteristics associated with a transition into first marriage 2001–06, *Journal of Sociology* **,**March 2012 vol. 48 no.1,p. 43-61.

Kulu Hill ,Paul J. Boyle (2010). Premarital cohabitation and divorce: Support for the "Trial Marriage" Theory?, *Demographic Research*: Volume 23, Article 31,p.879-904.

Lambert Anne(2009). "From Causes to Consequences:A critical history of divorce as a study object and the main orientations of French research",*Population*,2009,Volume 64,Number 1,p.147-172.

Lampard Richard (2013). Age at marriage and the risk of divorce in England and Wales,*Demographic research*, Volume 29, article 7:p.167-202.

OECD Family Database www.oecd.org/social/family/database OECD - Social Policy Division - Directorate of Employment, Labour and Social Affairs.

Risteski Slave, Tevdovski Dragan,Trpkova Marija (2012). Introduction in the time series analysis with *Minitab and EViews application.*:Faculty of Economics-Skopje.

Rotz Dana (2012). Why Have Divorce Rates Fallen?The Role of Women's Age at Marriage, Mathematica Policy Research, November 2012.

Salles Anne.(2006). The effects of Family policy in the former GDR on nuptiality and births outside marriage, *Population*, 2006, Volume 61(1-2), p.141-152.

State Statistical Office, 20 years of Macedonia's Independence, Skopje, 2011.

State Statistical Office, Statistical Yearbooks of Republic of Macedonia, Skopje, 1999-2013.

State Statistical Office, Labor force Survey, Skopje, 2003- 2013.

State Statistical Office, Women and Men in Republic of Macedonia, Skopje, 2011-2013.

Tabutin Dominique ,Schoumaker Bruno (2005). The demography of the Arab world and the Middle East,*Population*, Volume 60,No 5-6, p.505-616.